one case, however, the liver was almost normal in macroscopic appearance, but microscopically showed a widespread and intense round-celled infiltration in the portal capillaries. This form probably passes into a genuine hypertrophic cirrhosis in later life.

SURGERY.

UNDER THE CHARGE OF

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The Surgery of the Peritoneum.—MR. FREDERICK TREVES has devoted a great deal of time to the study of the peritoneum, and his observations have been an important factor in the development of the present advanced state of the surgery of this structure. We therefore naturally read with great interest his "review" of this subject (*British Medical Journal*, 1896, No. 1870).

Mr. Treves advocates the simplest possible technique in the preparatory details and during an operation. While not sacrificing any of the essentials, he avoids those extravagant measures that savor more of ostentation than a rational interest in the welfare of the patient. The author still retains his confidence in the value of iodoform as a part of the dressing of wounds.

The advance made in our knowledge of peritonitis has been mainly in an appreciation that all the varieties hitherto considered as different forms are due to infection and are practically identical in their consequences. The constitutional symptoms of peritonitis are due to septic intoxication, and in the fatal cases death is due to blood-poisoning. Great harm has been done in the past, the author believes, by what has been termed "the toilet of the peritoneum." In removing accumulations or tumors from the abdominal cavity every precaution should be taken not to disturb the peritoneum beyond the immediate area of the operation, by the appropriate use of gauze-pads, etc., so that extensive flushing or sponging will be unnecessary. Peritonitis not involving the "small intestine area," subphrenic, iliac, and pelvic, is apt to be localized, and the surgical treatment of the affection in these situations is very successful. If the "small intestine area" is involved, however, the inflammation spreads rapidly and evidences of profound constitutional poisoning precede the usually fatal issue. The results of surgical interference in these cases, Mr. Treves says, "at the best are not brilliant, and it is evident that the treatment of this terrible complication must still incline toward that desirable prevention which is better than cure."

The author still retains the term "perityphlitis." While he is perfectly familiar with the comparatively much greater frequence of primary inflammation of the appendix, the evidence before the profession warrants the assertion of the existence of true peritonitis due to primary ulceration of the cæcum. This does not refer to epithelioma, actinomycosis, or tuberculous disease, but to non-malignant, non-parasitic ulceration of the bowel. Those cases are also excluded in which perforation of the cæcum is secondary to an appendicular abscess.

Our knowledge of the etiology of this disease, the author states, has not been added to by the "exuberant analytical discourses of some recent writers." He advances the suggestion that the process is comparatively simple. "A catarrh leading to ulceration would appear to be the commonest factor, and it is this condition which precedes that stricture of the appendix which is so frequently discovered. . . . Foreign bodies, seeds, and fruitstones play practically no part in the etiology of perityphlitis." The very few instances of real foreign bodies found in the appendix have been mostly small shot, pins, fragments of nut-shell, and bristles. Very many of the concretions are wonderfully accurate representations of certain seeds and fruitstones, and in some cases only division of the foreign body will reveal its true nature.

The statistics of Miles F. Porter, which give the common death-rate at about 14 per cent., are quoted. These figures, the author states, must have been derived mainly from hospital cases. He would place the general death-rate for all classes of cases at about 5 per cent.; but it may reach 30 or 40 per cent. in those complicated with abscess.

The subject of a perityphlitic abscess, it is stated, is by reason of that abscess, in the majority of instances, cured of his trouble should he survive. Sometimes an abscess that has been drained closes, only to open again, or a sinus may remain unhealed; but a second "perityphlitis" is very rare in these cases.

In regard to the question of treatment Mr. Treves says: "I have no reason to alter the opinion expressed some years ago that in dealing with cases during an attack an operation is seldom called for before the fifth day. Terms too strong cannot be used to condemn the practice of immediate operation; by that I mean the exposing of the appendix as soon as the diagnosis has been made. There is no sound basis for this procedure in either the pathology or the clinical prospects of the affection. It is not to be disputed that a fatal attack may commence mildly, and that it is not possible to foretell the degree of an attack by its mode of onset. The course of perityphlitis is, however, not so erratic as some maintain, and careful observation of each movement of the disease is not an unreliable basis for treatment. It is true that some intense attacks end in death in forty-eight hours; but if the whole range of the disease be reviewed, it is safe to say, with precision of language, that these terrific phases of the malady are exceedingly rare on the one hand and are not difficult to recognize on the other.

"In such extreme examples an operation cannot be done too soon. The assurance that simple incision is attended by a death-rate of 18.18 per cent. is not an encouragement to operate as a matter of routine. I need not add that evidence or strong suspicion of the presence of pus indicates immediate interference, and a like course is clear should the swelling continue to increase with no abatement of the fever and other symptoms.

"When an abscess is evident or suspected the locality of the incision must be determined by the area of dulness and of resistance. Should the wound be made too far to the inner side as to miss the collection and open the peritoneal cavity, that incision should be closed and a fresh incision made at a point where the evacuation of the pus within the enclosed area can be effected. The incision should be free; the abscess-cavity is gently examined as to its position and extent, and information obtained as to the situation of diverticula. These diverticula can be cautiously opened up with the finger. No elaborate search should be made for the appendix. Such search means risk to the frail abscess-wall, and to that often feeble barrier of adhesions which isolates the pus from the general peritoneal cavity. Continued trouble may follow from a retained concretion, and as such a substance is usually easily to be felt, it should be sought for and removed. Should the diseased appendix actually present itself, it can be ligated and taken away. The high mortality accredited to this operation depends, I cannot help thinking, upon a blind resolve to excise the vermiform process at all hazards. The operation is concerned with the evacuation of an abscess, and those cases do best in which the least is done, provided that a free evacuation of the pus has been secured. The cavity does not need to be squeezed; it does not call for irrigation nor for sponging out, and least of all for scraping. As for drainage, nothing answers better than the iodoform-gauze drain properly cut and carefully introduced."

The risk attending the removal of the appendix in the period of quiescence, first proposed by the author in 1888, has been in his experience less than 1 per cent., and is therefore less than that of a recurrence of the inflammation. In the majority of cases, however, the attack is single, but we have as yet no reliable figures on this point.

The very interesting paper concludes with the following rational statements: "The treatment of a diseased appendix involves no new surgical principle and calls for no labored inventions. The treatment of the abscess is based upon those great general principles which underlie the treatment of all abscesses, and the removal of the little organ demands no departure from those accepted procedures which belong to the common lore of surgery."

Excision of the Tarsus.—Lauderer (*Cent. für Chir.*, September 5, 1896, No. 36) gives a new line of incision for reaching the tarsus and contiguous structures. The incision begins at the insertion of the tendo-Achillis and extends in the median line on the plantar surface of the foot down to the bone. It divides no vital structures, simply the fat, plantar fascia, and the flexor digitorum muscle in a line parallel to its fibres. The splitting of the tendo-Achillis upward will do no injury if it is necessary. By holding the parts apart with sharp retractors all the bones of the foot may be readily reached by the use of the periosteal elevator, and easily removed.

The position of the incision is very serviceable in the after-treatment, as drainage is good. A light antiseptic packing is useful to prevent the too early adhesion of the edges of the wound. The deformity produced is very slight and can be corrected by a thickened sole on the shoe. There is no difficulty from the scar-tissue, as it contracts and sinks deeply and is consequently free from pressure.

A New Truss for Inguinal Hernia.—WALFERMANN (*Cent. für Chir.*, 1896, No. 15) describes a new truss having a long oval pad of inflated rubber which covers the entire inguinal canal. It is hinged to the spring surrounding the body, and so regulated by means of a spring and lock between it and the body-spring that a continuous even and easily regulated pressure is exerted over the entire canal.

The author claims for it the following advantages:

1. Uniform pressure over the entire length of the inguinal canal, so that the anterior and posterior walls are firmly pressed together.
2. A backward pressure of the abdominal parietes, so that a convexity is produced on the internal aspect.
3. By this pressure the sulci on either side of the epigastric fold are effaced, and the intestines have no tendency to escape outwardly.
4. That it is possible so to regulate the pressure of the truss that minute variations may be obtained upon the area desired without exerting undue pressure at other points.
5. The motion made possible by the hinge and springs makes the pad conform to the body in all positions and under all strains, and the danger of pressure on the hernial contents, after they have slipped past, is thereby greatly lessened.

The Treatment of Acute Perforating Appendicitis with Diffuse Peritonitis.—FLODERUS (*Arch. für klin. Chir.*, 1897, Band liv. Heft 1) reports in detail a case of perforating appendicitis, with general peritonitis, in a patient twenty-five years old, which was successfully operated upon by LENNANDER one hundred hours after the inception of the disease, and about fifty hours after perforation had occurred.

The method of operating which is employed by Lennander in cases of suppurative appendicitis is an incision parallel to and a little above Poupart's ligament. Through this incision perfect drainage can be obtained in all cases, while in some it is possible to open retroperitoneally a peri-appendicular abscess. This incision also possesses the advantage of far less predisposition to hernia, as the motor nerves are not divided and the incision passes through the tendinous rather than the muscular portion of the abdomen.

In evacuating a peri-appendicular focus of suppuration great care should be taken not to infect the general peritoneal cavity. To this end the author covers the exposed intestines and the wall of the abscess with sterile compresses saturated in a physiological salt-solution. The pus should then be absorbed by small sterile compresses as soon as it shows itself in the bottom of the wound. If the pus flows in too large a quantity to be absorbed in this manner, the patient should be turned upon the right side, the median portion of the abdomen being compressed by an assistant. The pus is thus prevented from infecting the general peritoneal cavity. As soon as the pus is all out the finger is passed into the abscess-cavity and the cavity carefully cleaned with compresses.

The appendix is now sought out and removed as near to the cæcal origin as possible. In these cases of suppurative appendicitis the attempt to ligate the appendix and close the stump by sutures is unnecessary. It is better, as in the case reported, to place upon it a large hæmostat, which includes its mesentery, the distal portion of the appendix being removed. The hæmostat is removed three or four days later. There may arise later an intestinal fistula; but this is of little consequence, as it will close of itself, and may be of value in allowing the escape of gases and the consequent renewed peristalsis, as in the case reported. As soon as the appendix has been removed and all foci of suppuration, the skin is cleansed with a 1:1000 sublimate solution, the tampons are removed and the cavity carefully packed with iodoform-gauze. If the cavity is not too large to be easily drained, the corners of the wound may be united by a few catgut or silkworm-gut sutures.

The washing out of the general peritoneal cavity is only employed when there has been, in spite of all precautions, an escape of a large quantity of pus into the cavity or a general peritonitis is already present. If it is necessary, he employs a normal salt-solution at a temperature of about 100° F., using it until the returning water is perfectly clear. During the washing the pulse should be carefully watched, as collapse may occur due to a splanchnic reflex.

The after-treatment is of great importance, and consists in stimulation and feeding to keep up the patient's vitality during the acute stage and hasten the elimination of the poison. The method employed is digitalis for three days, followed for one week by camphor injections and the use of enemata of grape-sugar and brandy, which are the least irritating and best borne by the rectum, while they act reflexly upon the upper intestine, provoking peristaltic movements. Salt-solution transfusions are also to be employed, increasing the volume of the blood and its pressure and hindering the drying up of the tissues, which always occurs and which cannot be counteracted by the administration of fluids by the mouth.

The second indication, the removal of the poison, cannot be accomplished without the entire removal of the gangrenous appendix and the complete evacuation of the abscess-cavity. A further indication is the provoking of diuresis, which the heart-stimulants and transfusions tend to produce.

The peristalsis of the intestine must be restored as quickly as possible in order that it may empty itself of its septic contents. To this end he employs during the operation puncture of the intestines to allow the escape of the contained gases, and later the minute and frequently repeated doses of calomel, followed by a saline laxative. The same end is achieved by enemata frequently repeated and by the passage of a rubber tube up into the rectum, allowing the escape of flatus.

So long as the peristalsis is not complete no food is allowed by the mouth, the patient being sustained by the enema noted above. Since the pain following operation is due to a large extent to the meteorismus, it should be counteracted by enema and the use of the tube to draw off the gases. The author strenuously advises against the use of morphine, never employing it unless the pain is insufferable, and then only one dose of grain $\frac{1}{8}$. The morphine, by its action upon the bowel, prevents peristalsis and the discharge of the contained poisons and flatus.

The administration of morphine in the early stages of the disease only masks its symptoms and delays the diagnosis of perforation, and as each hour's delay before operation, after perforation, vitiates and lessens the patient's chance of recovery, morphine should never be employed, but the patient should be operated upon as soon as the diagnosis of perforation has been made.

Of sixty-eight cases operated upon in the clinic of Upsala there were six with diffuse and nine with fibrino-purulent peritonitis. Of the six, two only recovered, while of the nine all but one recovered, and this patient was operated upon in a moribund condition. This difference in mortality marks sharply the difference in prognosis between these two classes of critical cases.

Osteoma of the Patellar Ligament.—LEJARS (*Gaz. Hebdom. de Méd. et de Chir.*, February 21, 1897) reports an interesting case of pure osteoma situated in the patellar ligament, between the patella and tuberosity of the tibia. The tumor sprang directly from the ligament and had no connection with the patella or tibia. It was about the size of a walnut and made up of compact osseous tissue. Its removal was necessitated by its interference with the motion of the joint, which, although slight, weakened the joint.

The danger in its removal lay in the destruction of the patellar tendon; however, by a subperiosteal dissection, the tumor was removed, and after careful suturing together of the remaining portion of the tendon union was secured with no loss of function.

Traumatic Hemorrhage into the White Brain-substance Cured by Surgical Interference.—BORSUK and WIZEL (*Archiv für klin. Chir.*, 1897, Band liv. Heft 1) reports a case of hemorrhage into the white substance of the brain, followed by aphasia, hemiparesis, and Jacksonian epilepsy, which was cured by surgical interference.

After the removal of a clot from the dura and the relief of acute symptoms the patient had repeated attacks of Jacksonian epilepsy. The reopened wound showed nothing abnormal, but a long hypodermatic needle passed deeply into the brain-substance drew out a blood-stained fluid. The dura was then incised, the needle again passed, and at the point from which the blood-stained fluid was withdrawn a deep incision was made down to the white substance. Bloody fluid and blood-stained contused white matter were removed, a strip of iodoform-gauze was inserted, and the wound sutured about it. The strip of gauze was removed twelve days after the operation, and with it about a teaspoonful of blood-stained fluid. The wound then closed and the patient made a complete recovery.

This observation leads to the following conclusions:

1. Extravasations of blood of traumatic origin can be removed from the brain-substance by surgical methods, as well as contused and destroyed brain-substance, and in the same manner pathological and circumscribed portions of brain-matter.

2. It is possible that extravasations of blood other than those of traumatic origin may be removed by surgical interference.

3. The brain does not resent surgical procedures more than any other part of the body.